AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [00022] with the following paragraph:

[00022] Fig. 2 shows a vehicle 10 having a sprung mass high center of gravity C.G. 32 such as a van or a sport utility vehicle. A y-axis 34 and a z-axis 36 represent directional planes of a vehicle sprung mass C.G. 32 while traveling along a road. The set of axes are fixed to the vehicle spring mass C.G. 32 and rotate with the vehicle spring mass C.G. 32. The vehicle 10 has a lateral acceleration (a_{ym}) 38 that is a vector force exerted by the vehicle 10 along the y-axis 34. The lateral acceleration (a_{ym}) 38 is measured by an accelerometer attached to the vehicle sprung mass C.G. and based partly on vehicle acceleration and partly on gravity. A force exerted along the Z-axis 36 is a gravitational force 30 represented by:

$$g \cos(\varphi)$$

where g is a gravitational constant and φ is a roll angle of the vehicle sprung mass C.G. ~~12~~ 32 relating to the lateral acceleration (a_{ym}) 38 and/or if present the super elevation angle of the road surface. The vehicle 10 while driving on a flat surface having a 0° roll angle would have a gravitational force 30 equal to the gravitational constant (g) since the cos 0°= 1. A nominal height (h) is measured from the road to the vehicle sprung mass C.G. ~~12~~ 32 while the half track width (d) represents the width from a tire outside edge to the vehicle sprung mass C.G ~~12~~ 32. Nominal height (h) and half track width (d) are stored in memory as part of the vehicle specific dynamic model 22.

Please replace paragraph [00023] with the following paragraph:

[00023] Fig. 3 represents the vehicle 10 having a first pair of wheels on a first side of the vehicle 10 in contact with the road surface and a second pair of wheels elevated from the road surface while the vehicle 10 is tilted from the horizontal by an angle θ. A net gravitational force 31 acting on the vehicle sprung mass C.G. ~~12~~ 32 while in the tilted position is represented by the following formula:

$$g \cos(\varphi)/\cos(\theta)$$

A set of reconfigured coordinate axes are shown relating to the tilted vehicle 10. A z'-axis ~~26~~ 37 is parallel to the net gravitational force acting on the vehicle sprung mass C.G. ~~12~~ 32 while a y'-axis 35 of the lateral acceleration (a*ym*) 38 is always equal to zero.

Please replace paragraph [00024] with the following paragraph:

[00024] A minimum amount of potential energy required for an actual roll over is the net gravitational force times the differential in height between the nominal height in a static condition and the ultimate height of the vehicle sprung mass C.G. 32 at the verge of rollover defined by the formula:

$$(g \cos \varphi / \cos \theta) * \Delta h$$

If (h) is defined as the nominal height of the vehicle sprung mass C.G. ~~12~~ 32 while all wheels are in contact with the road surface (as shown in Fig. 2), then a current height of the vehicle sprung mass C.G. ~~12~~ 32 may be defined by the formula:

$$d \sin (\theta) + h \cos (\theta),$$

and the ultimate height of vehicle sprung mass C.G. ~~12~~ 32 when the vehicle 10 is at the verge of the actual roll over is defined by the formula:

$$\sqrt{d^2 + h^2}$$

Therefore, the height change (Δh) of the vehicle sprung mass C.G. ~~12~~ 32 required for roll over is defined by the formula:

$$\Delta h = \sqrt{d^2 + h^2} - (d \sin\theta + h \cos\theta)$$

which leads to

$$\Delta h = \sqrt{d^2 + h^2} - \frac{d\, a_{ym} + h\, g \cos \varphi}{\sqrt{g^2 \cos^2 \varphi + a_{ym}^2}}$$

Since the lateral kinetic energy of the vehicle 10 can be converted to potential energy very quickly through a rolling motion, the vehicle 10 has a potential to roll over at any time if the lateral kinetic energy is greater than or equal to the minimum amount of potential energy required for actual rollover. The lateral kinetic energy is defined by the formula:

$$\frac{1}{2}V_y^2,$$

where Vy is the vehicle's lateral velocity, therefore

$$\frac{1}{2}V_y^2 > \frac{g\ cos\varphi}{cos\theta}\ \Delta h$$

which leads to

$$\frac{1}{2}V_y^2 > \sqrt{g^2\ cos^2\varphi + a_{ym}^2}\ \Delta h$$

which leads to

$$\frac{1}{2}V_y^2 > \sqrt{g^2\ cos^2\varphi + a_{ym}^2}\sqrt{d^2 + h^2} - (d\ a_{ym} + h\ g\ cos\varphi)$$

The lateral velocity (V_y) can be calculated from longitudinal velocity (V_x) and vehicle side slip angle (β) as:

$$V_y = V_x\ \beta$$

The longitudinal velocity (V_x) is the velocity of the vehicle 10 traveling along the road and is measured by wheel speed sensors. The vehicle side slip angle (β) is determined by the controller monitoring the yaw rate, the lateral acceleration (a*ym*) 38, the steering wheel angle, and a specific vehicle dynamic model of the vehicle 10.